EMILY ZENG

1B MECHATRONICS ENGINEERING

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Skills Summary

C++

Data science programming using **scikit learn, numpy, and pandas** libraries in **Python**

MEAN stack web development
- MongoDB
- ExpressJS
- Angular
- NodeJS

HTML, CSS, Javascript

Git

Proficient in **AutoCAD** and **Solidworks**

Education

University of Waterloo,
Candidate for B.A.Sc.
Mechatronics Engineering
2016 – 2021

Relevant courses include:
Algorithms and Data Structures (MTE140)
Circuits (MTE120)
Engineering Gaphics and Design (MTE100)
Digital Computation (GENE 121)

Experience

Machine Learning Driven Data Science Intern
Stackup – National University of Singapore/ISS — Jan – April 2017
- Assisted in developing Machine Learning Driven Data Science course
- Developed ecommerce website for use as case study I n course *(see below)*
- Created Facial recognition program for use as case study *(see below)*
- Modeled new office space on google sketchup

Robotics Team Member
FIRST Robotics – Team 4733 — 2014 – 2016
- Participated in a self-funded, student run team which designed and created robots from scratch in the FIRST robotics competition, programmed using C++
- Designed and prototyped mechanical arm for 2016 stronghold competition
- Brought in $500 in sponsorships, including non-monetary resources eg. mentoring and technological resources

Associate User Experience Architect
Critical Mass — August 2015
- Analyzed and designed improvements to the user experience in customer support centers for GoDaddy, Sunglasses Hut, and AT&T
- Ideas then incorporated by company into presentation to clients

Projects

Ecommerce Website — Jan – April 2017
- Developed MEAN Stack website to be used as base template for machine learning model (eg. find related product, categorization, etc.)
- Heavily modified original template
  - Changed to using mongoose to connect with MongoDB; increasing maintainability and simplifying code
  - Developed schemas to suit case model, such as linking to related product, thus increasing functionality
  - Modified front end to increase functionality (see above), and to be more aesthetically pleasing
- Created python web-crawler to get product information from commercial ecommerce website

Facial Recognition — Jan – April 2017
- Identified faces by Principle Component Analysis through using various machine learning libraries in python such as scikit learn
- Achieved maximum precision of 85%

Sandwich Maker — Nov 2017
- LegoNXT system programmed using RobotC, with 3 sensors (colour, ultrasonic, and touch) and a dual direction locking motor system to dispense ingredients and make a sandwich

Awards

- First Place – Waterloo Engineering Competition (junior design) 2017
- Second Place – Engineering Graphics and Design, Tron Days (University of Waterloo) 2016
- Most Spectacular Failure – TRON days (Waterloo) 2016
- Gold medal – Calgary Youth Science Fair 2015